

Comparative Analysis of Crypto Sentiment Indices

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Highlights

- ▶ A two-year horse-race analysis benchmarks four leading cryptocurrency sentiment indices, offered by Nodiens, CFGI, AltIndex, and Santiment, under a unified and comparable statistical framework.
- ▶ All indices demonstrate meaningful alignment with crypto price dynamics, reinforcing the importance of social sentiment as a behavioural signal in sentiment-driven markets.
- ▶ Sentiment–price relationships are modest at weekly frequencies but strengthen markedly at the monthly horizon, revealing the medium-term nature of sentiment effects in crypto markets.
- ▶ The Nodiens Mood Index stands out at the monthly frequency, achieving more than double the average correlation of the next best-performing sentiment index.
- ▶ The results highlight that index design matters, with the Nodiens Mood Index capturing persistent shifts in market mood and showing greater market relevance than indices focused on short-term fluctuations.

Introduction

Cryptocurrency markets are among the most sentiment-sensitive financial environments, where shifts in public mood expressed across online social platforms can rapidly influence trading behaviour and price dynamics. Unlike traditional financial markets, information diffusion in crypto ecosystems is largely decentralised and community-driven, with social media channels and online discussion forums serving as primary venues for narrative formation, expectation setting, and collective emotional expression. This social layer functions as a real-time coordination mechanism for market participants. As a result, sentiment-based indicators have become increasingly relevant tools for monitoring market conditions and complementing conventional price-based analysis.

A growing body of research demonstrates that sentiment extracted from large-scale online data contains information relevant for forecasting market movements. Early evidence shows that collective mood states derived from social media precede changes in equity market indices by several days [1] and exhibit significant predictive power for price returns [2]. In cryptocurrency markets, multiple studies find that public sentiment indicators are associated with subsequent price dynamics, volatility, and speculative behaviour, including the formation of bubbles and abrupt market reversals [3, 4]. These effects are generally stronger in crypto markets than in traditional asset classes [5]. Together, these findings support the view that sentiment captures behavioural forces that are not immediately embedded in prices, yet materially shape market outcomes.

In response to the growing demand for behavioural market intelligence, a range of cryptocurrency sentiment indices has emerged, each relying on different data sources, modelling assumptions, and aggregation techniques. Most indices aim to quantify the emotional tone and directional bias of online discussions by processing large volumes of unstructured text from platforms such as Twitter, Reddit, and Telegram, transforming dispersed social signals into structured time-series indicators. While these indices focus on the same task, sentiment scoring, their methodological choices can lead to substantial differences in signal quality, stability, and market relevance. Prior research on alternative predictors and factor-based approaches highlights that not all indicators are equally informative across assets or market regimes, revealing the need for systematic, comparative evaluation [6].

This report presents a **horse-race performance analysis** of four cryptocurrency sentiment indices, with a particular focus on evaluating the **Nodiens Mood Index**, a proprietary indicator designed to quantify the evolving emotional state of crypto communities across the social layer. The analysis compares sentiment measures from **Santiment** [7], **AltIndex** [8], **CFGI** [9], and **Nodiens** [10] under a unified preprocessing and evaluation framework to ensure comparability. Asset price dynamics are used as the benchmark for assessing market relevance. The report provides a unified framework for systematically comparing the market relevance of the sentiment indicators.

Data and Scope

This report evaluates the performance of cryptocurrency sentiment indices provided by four online platforms. The dataset spans a two-year period from 20 December 2023 to 15 December 2025 and covers a set of major crypto assets for which all sentiment indices are jointly available.

Four sentiment indices are examined:

- Nodiens Mood Index
- Santiment Weighted Sentiment
- AltIndex Sentiment Score
- CFGI Social Sentiment

Sentiment signals are derived from online platforms where crypto-related discussions are most active, including Twitter, Reddit, and Telegram. However, the platforms included in this comparison do not fully disclose the proprietary methodologies used to construct their sentiment indices.

Index	Index Name	Frequency	Index Range	Assets Covered
Nodiens	Mood Index	Daily	Unbounded (positive)	~2000+
Sentiment	Weighted Sentiment	Daily	Unbounded (positive/negative)	~1500+
CFGI	Social Sentiment	Daily	0–100	114
AltIndex	Sentiment Score	Daily	0–100	55

Table 1. Overview of Cryptocurrency Sentiment Indices. All indices are computed daily. Nodiens and Santiment provide unbounded sentiment measures, while CFGI and AltIndex report bounded scores between 0 and 100. Nodiens offers the widest asset coverage, followed by Santiment with approximately 1,500 assets, and CFGI and AltIndex focus on a relatively narrow set of major cryptocurrencies.

Methodology

Horse-Race Evaluation Framework

The analysis adopts a horse-race evaluation framework, in which multiple sentiment indices are assessed under identical preprocessing, transformation, and evaluation conditions. This standardized setup ensures that observed differences in performance reflect variations in the informational content of the sentiment indices themselves rather than methodological choices. Within this framework, the **Nodiens Mood Index** is benchmarked against alternative available sentiment indices.

Stationarity Assessment

Prior to any transformation or correlation analysis, the time-series properties of both sentiment indices and asset prices are examined using the **Augmented Dickey–Fuller (ADF) unit root test** [11]. The ADF test evaluates the null hypothesis that a series contains a unit root and is therefore non-stationary. Establishing stationarity is essential to avoid spurious correlations and to ensure the validity of subsequent statistical inference in time-series analysis.

Data Transformation

Guided by the unit root test results, all series are transformed to achieve stationarity and comparability across assets and indices.

- **Asset prices** are converted to **returns**, removing stochastic trends and scale effects inherent in price levels.
- **Sentiment indices** are transformed using **first-order differencing**, capturing changes in sentiment rather than absolute index levels.

This transformation shifts the focus from sentiment levels to changes in sentiment, which are more relevant for short-term market movements. For indices with bounded or mean-reverting behaviour, first differencing reduces boundary effects and ensures that the analysis captures sentiment changes rather than absolute index values. As a result, sentiment dynamics can be compared more consistently with price-based measures.

Correlation Analysis

Predictive relevance is assessed using the **Pearson correlation coefficient** [12], which measures the strength and direction of linear relationships between changes in sentiment and subsequent asset price dynamics. Pearson correlation is one of the empirical methods to evaluate the utility of the informational content of the indicator [13].

Results

Interpretation of Unit Root Test Results

Series Type	Series	Stationary in Levels	Stationary in First Differences	Stationary in Returns
Price	Price level	No (majority)	Yes	Yes
Sentiment	Nodiens Mood Index	No (majority)	Yes	NA
Sentiment	CFGSI Social Sentiment	Mixed	Yes	NA
Sentiment	Santiment Weighted Sentiment	Yes (majority)	Yes	NA
Sentiment	AltIndex Sentiment Score	Yes (majority)	Yes	NA

Table 2. The table summarizes the ADF unit root test results across all assets and sentiment indices. The table reports whether each series is stationary in levels or becomes stationary after first differencing, evaluated at the 5% significance level.

The unit root analysis highlights a fundamental difference between price series and sentiment indices. Cryptocurrency prices are largely non-stationary in levels and become stationary only after first differencing or transformation into returns. As a result, price returns are used as the appropriate basis for correlation analysis.

Sentiment indices display more heterogeneous behavior. Third-party sentiment measures (e.g., AltIndex, CFGSI, Santiment) are largely stationary in levels, reflecting their bounded or mean-reverting construction. In contrast, the Nodiens Mood Index shows persistent dynamics and is predominantly non-stationary in levels, becoming stationary only after first differencing. This behavior is consistent with an index designed to capture accumulated sentiment pressure rather than short-lived fluctuations.

Correlation Analysis Results

To ensure statistical validity and avoid spurious relationships, all series used in the correlation analysis are transformed to be stationary. Prices are therefore represented by returns, while sentiment indices are represented by their first differences, capturing changes in sentiment rather than absolute levels.

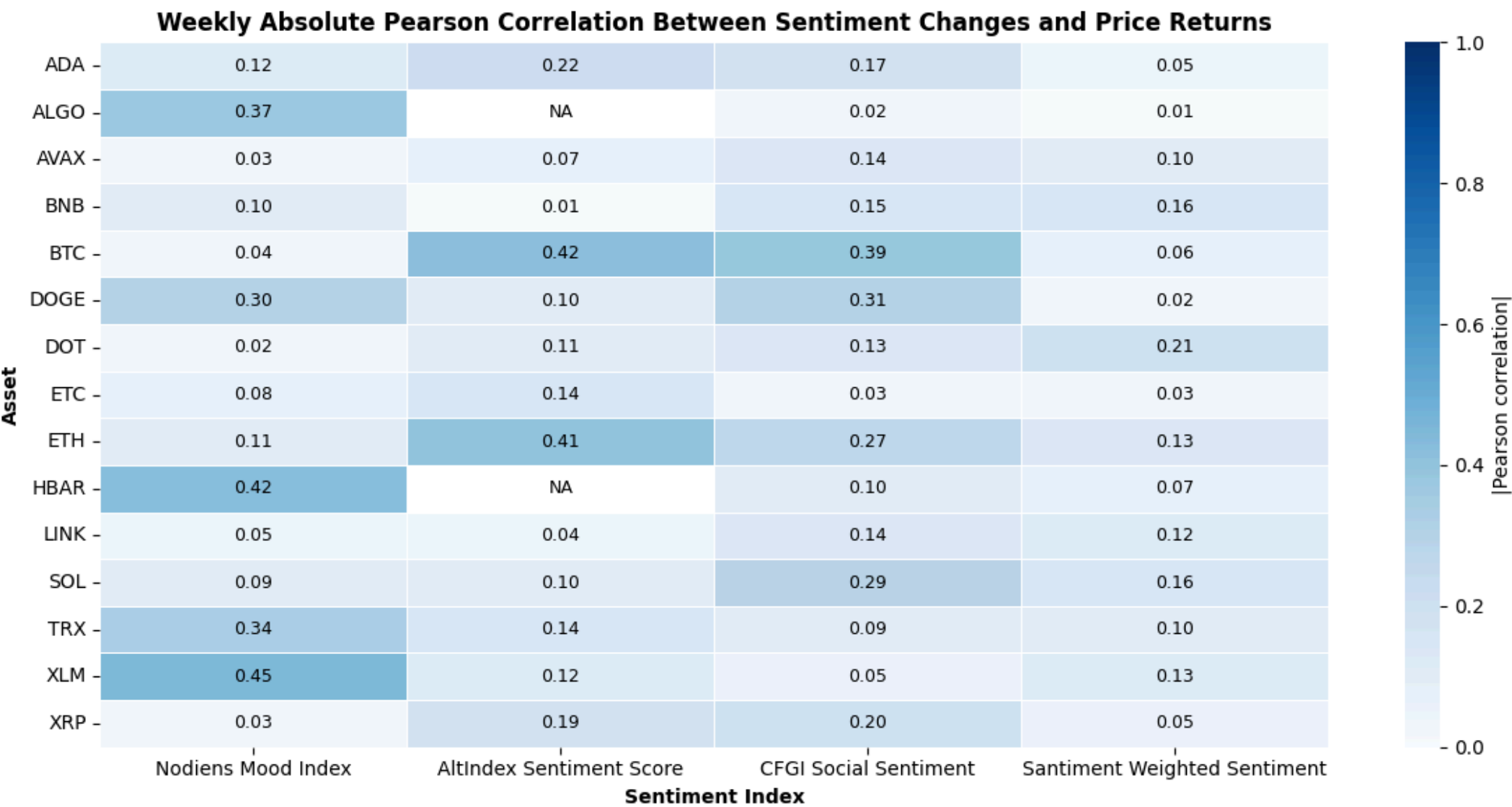


Figure 1. Weekly Absolute Pearson Correlation Between Sentiment Changes and Price Returns.
Heatmap showing absolute Pearson correlations between weekly sentiment changes and weekly price returns across crypto assets and sentiment indices. Darker shades indicate stronger correlations. NA values reflect missing index coverage for specific assets.

At the weekly frequency, sentiment indices already exhibit meaningful and non-trivial alignment with price dynamics across major crypto assets. As shown in Figure 1, absolute correlations are generally modest, reflecting the noisy and fast-moving nature of short-term crypto markets. However, when viewed in aggregate (Figure 3), weekly absolute average correlations cluster consistently between 0.09 and 0.17 across all indices, indicating that sentiment signals contain a stable baseline relationship with price movements even at high frequency. This is notable given that short-horizon returns are dominated by liquidity effects, order flow, and transient shocks. Importantly, the persistence of non-zero correlations across assets and indices suggests that sentiment captures real-time market awareness and collective positioning, providing valuable contextual information.

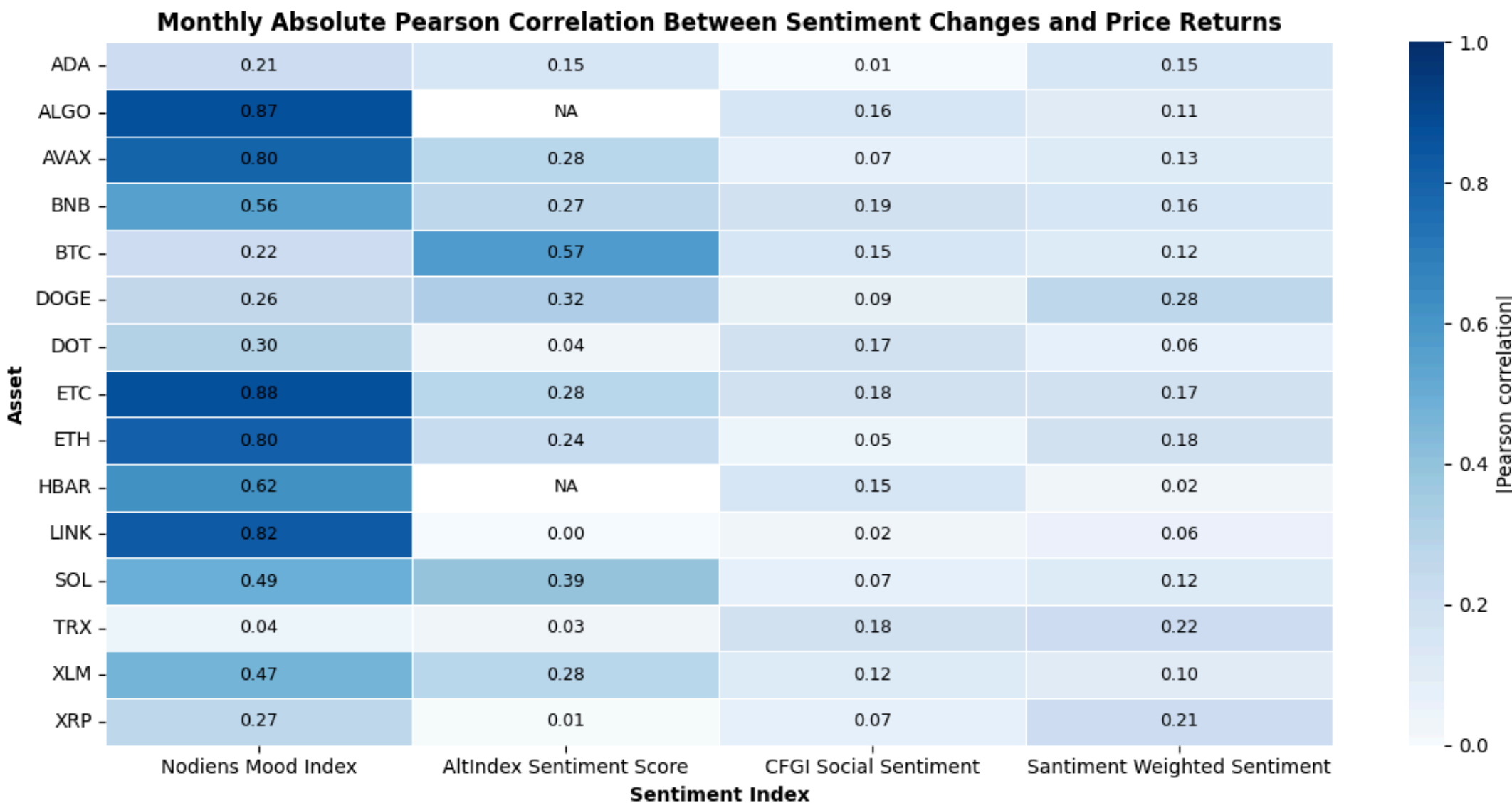
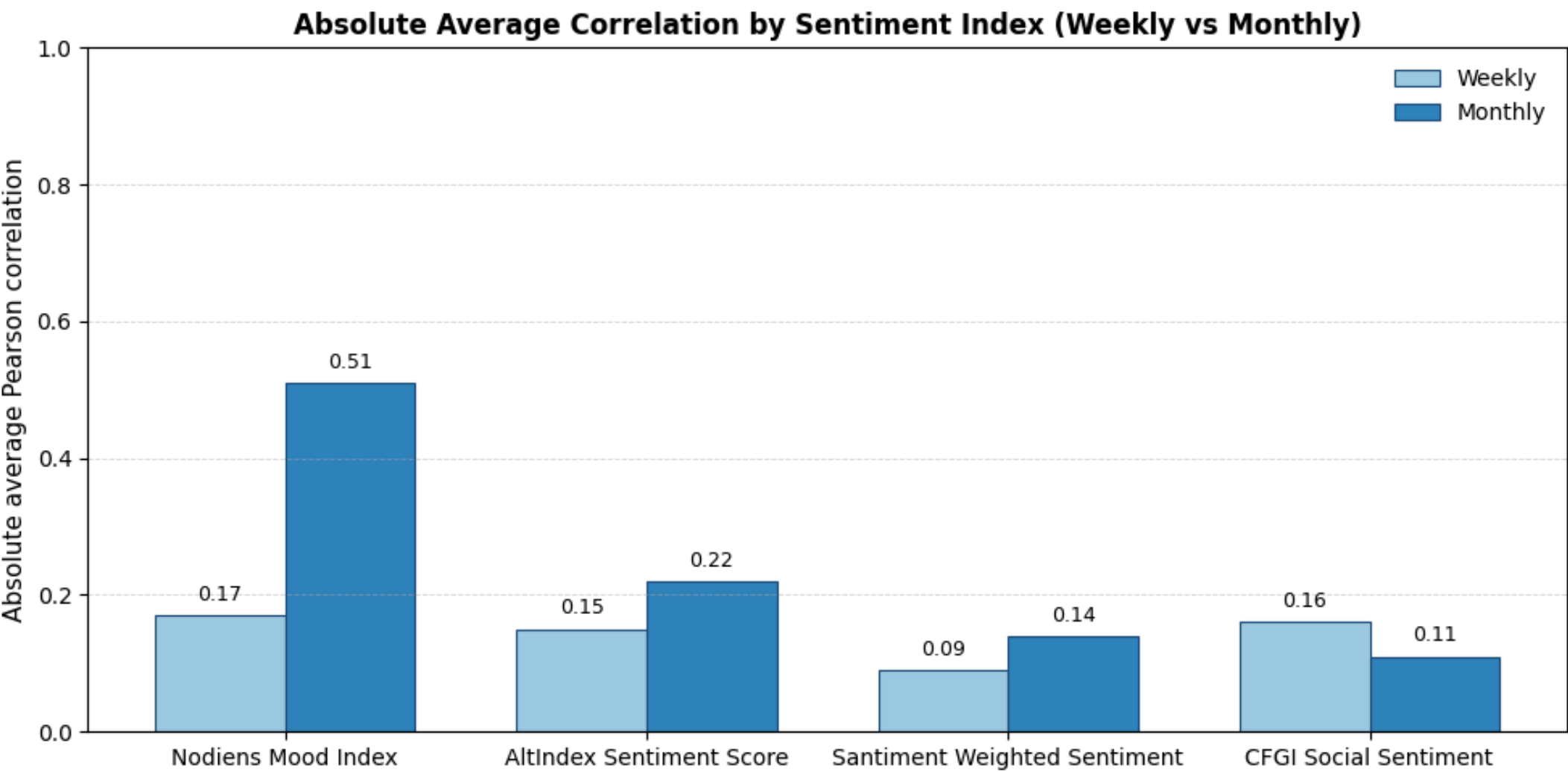


Figure 2. Monthly Absolute Pearson Correlation Between Sentiment Changes and Price Returns.
Heatmap showing absolute Pearson correlations between monthly sentiment changes and monthly price returns.

The monthly results reveal the full strength of sentiment-based analysis. As illustrated in Figure 2, correlations increase substantially once sentiment is allowed to operate over longer horizons, where narratives form, diffuse, and influence market behaviour. This effect is most clearly summarized in Figure 3, where the Nodiens Mood Index stands out with a monthly absolute average correlation of approximately 0.51, more than double that of the next best-performing index. While alternative indices show moderate improvements at the monthly level, their correlations remain comparatively limited. The strong separation observed for Nodiens highlights its ability to capture persistent shifts in collective mood rather than short-lived reactions, translating social dynamics into meaningful signals. Taken together, these findings demonstrate that sentiment is most powerful when interpreted as a medium-term behavioural indicator, and that the Nodiens Mood Index is particularly effective at quantifying this social layer, making it a compelling tool for investors seeking deeper insight into sentiment-driven crypto markets.



*Figure 3. Absolute Average Correlation by Sentiment Index (Weekly vs Monthly).
Bar chart summarizing absolute average correlations across assets.*

Conclusion

This report provides a systematic comparative evaluation of four leading cryptocurrency sentiment indices using a standardized horse-race framework. By applying consistent preprocessing, stationarity adjustments, and correlation-based evaluation across assets and time horizons, the analysis isolates differences in informational content attributable to index construction.

The results confirm that sentiment indicators contain financially meaningful information for cryptocurrency markets. At the weekly horizon, all indices exhibit modest but stable correlations with price returns, showing the noisy and liquidity-driven nature of short-term crypto price movements. These findings support the view that sentiment captures real-time market awareness and collective positioning with capacity for predictive strength.

At the monthly horizon, sentiment signals become substantially more informative. Correlations increase across all indices, indicating that sentiment operates primarily through medium-term behavioural channels such as narrative formation, expectation alignment, and belief reinforcement. Within this regime, the Nodiens Mood Index demonstrates a clear and persistent performance advantage, achieving more than double the average correlation of alternative sentiment measures. This separation suggests that an index designed to capture cumulative sentiment pressure is better suited to tracking sustained shifts in collective market mood than indices constructed to be bounded.

Overall, the findings reinforce the importance of sentiment as a behavioural factor in cryptocurrency markets and demonstrate that index design choices materially affect market relevance. The results show the potential of using sentiment indicators for the decision-making process and emphasize the differences of the potential of metrics offered by different providers.

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